

This is the coloration of two specimens; a third is uniform greenish olive. This specimen has also two small temporals in front and in contact with the postoculars. Ventrals 163; subcaudals 60.

Another variety, also represented by a single specimen, is uniform black above, lower parts dull greenish. Ventrals 162; subcaudals ca. 44 (tail slightly mutilated).

Total length  $24\frac{1}{2}$  in., of which the tail takes 5 and the head  $\frac{3}{4}$  in.

#### RANA NYASSÆ.

Vomerine teeth in two nearly straight, or slightly oblique series between the hinder part of the small choanæ. Snout moderate, rather pointed; tympanum two thirds of the area of the eye. Fingers slender, the two inner ones subequal; toes very slender, the fourth rather shorter than the distance between the vent and tympanum, two-thirds webbed. Subarticular tubercles almost absent; inner metatarsal tubercle small, short, no outer one. If the hind limb be carried forward along the body, the tibio-tarsal articulation reaches far beyond the snout. Skin of the back with numerous short, irregular, undulated folds, passing into small tubercles behind; abdomens smooth. Upper parts uniform blackish brown; abdomen whitish, largely marbled with dark brown; throat nearly entirely dark brown.

Length of body.....	27 lines.
„ hind limb.....	53 „
„ fourth toe.....	17 „

One specimen.

#### 4. On Zeuglodont and other Cetacean Remains from the Tertiary of the Caucasus. By R. LYDEKKER, B.A., F.Z.S.

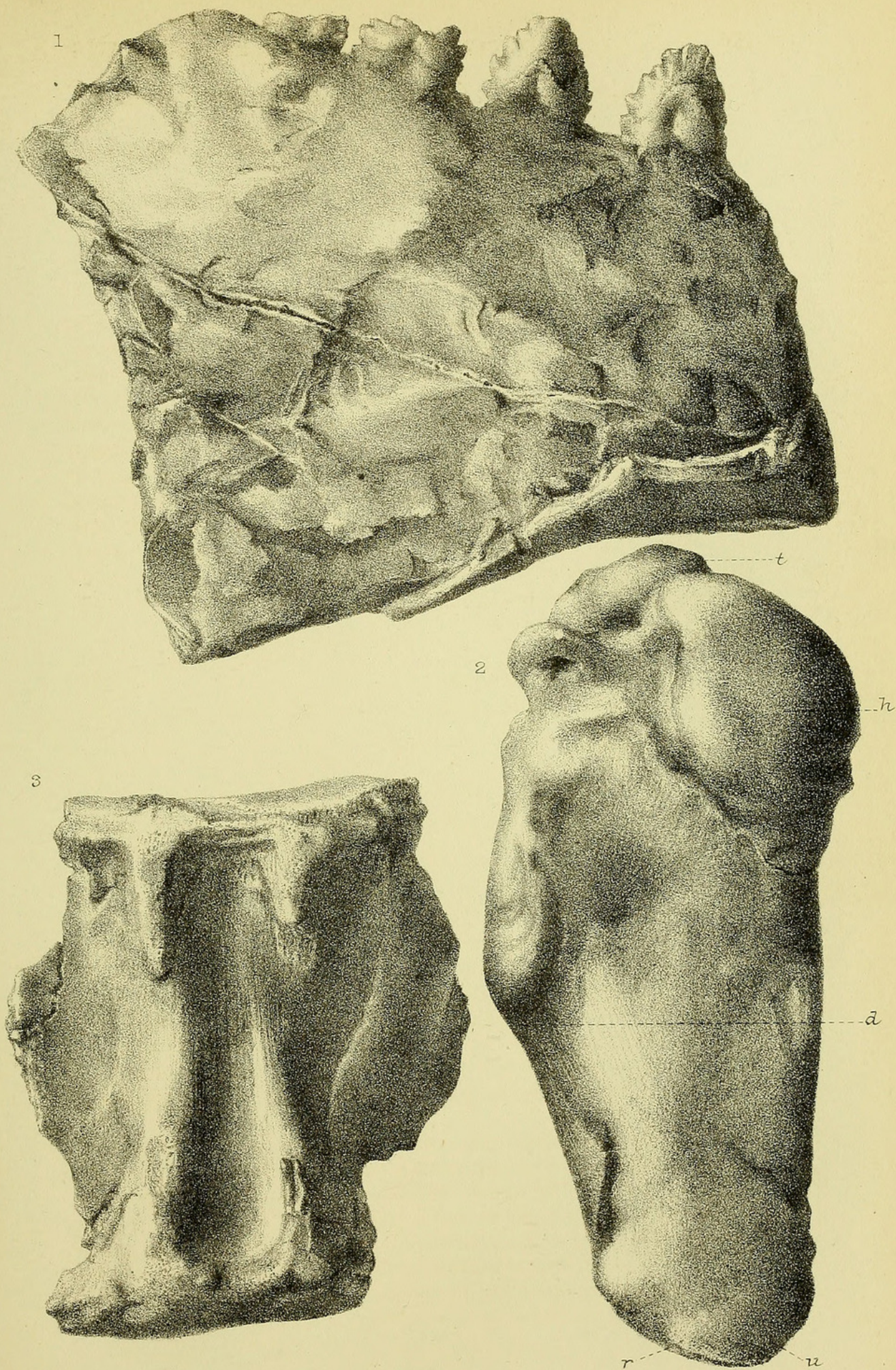
[Received September 3, 1892.]

(Plates XXXVI.-XXXVIII.)

The specimens forming the subject of the present communication were brought from Russia by my friend Mr. A. Smith Woodward, to whom they had been lent by Prof. H. Sjögren, of Upsala, for the purpose of examination and description. They were obtained from a Tertiary deposit, in company with a number of fish-remains, in the Caucasus.

The bones are in a fine state of preservation, and before cleaning were coated with a clayey matrix, among which were numerous plates of selenite; the nature of the matrix thus suggesting a deposit very similar in character to our own London Clay. The specimens comprise several fragments of jaws, numerous more or less imperfect vertebræ, and a single humerus; all evidently belonging to Cetaceans (assuming that the Zeuglodonts are rightly included in that group). The vertebræ and jaws indicate that we have to do with

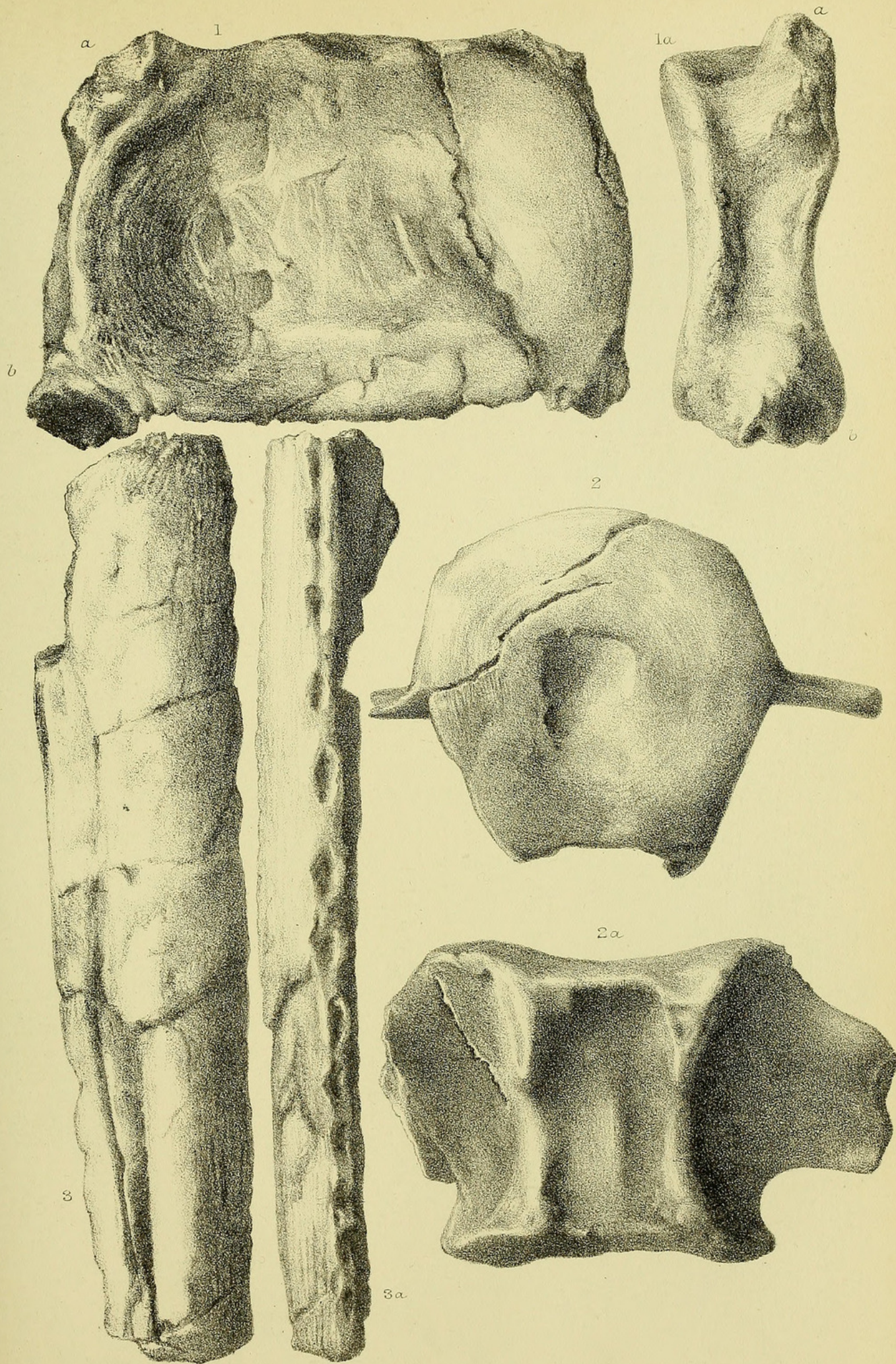








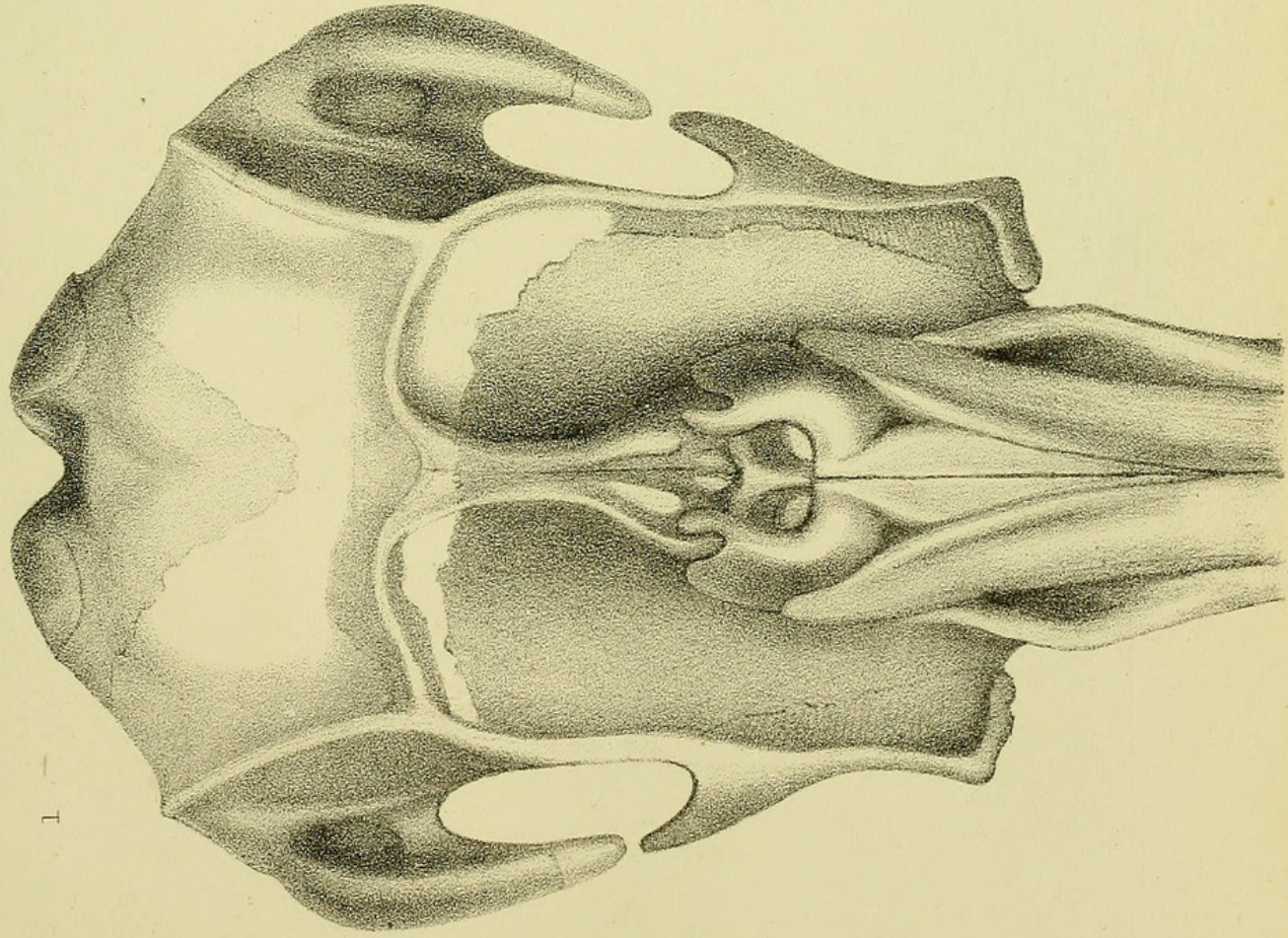




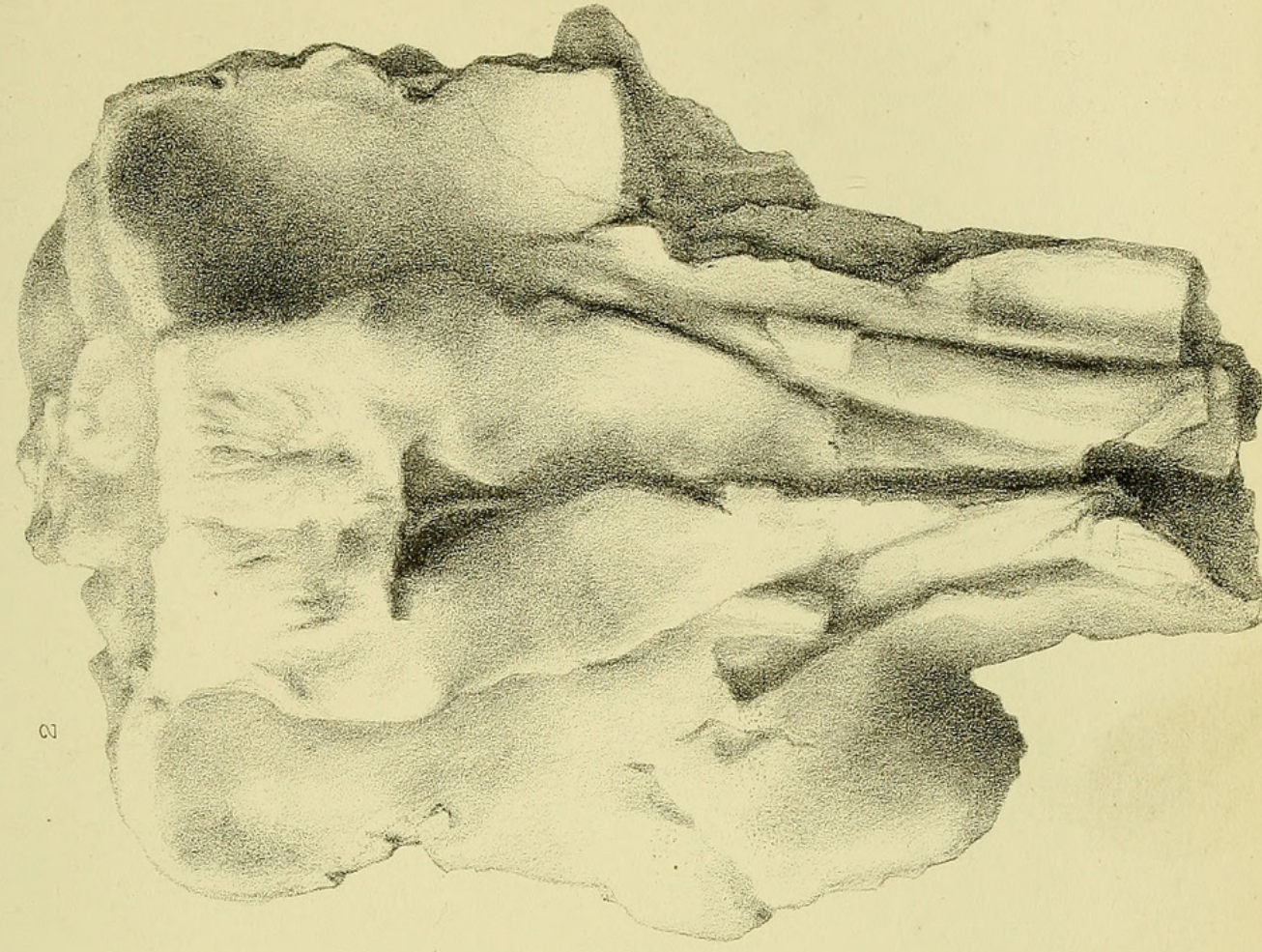








1



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three distinct forms, one of which was a *Zeuglodon*, the second a more typical Cetacean of relatively small size, and the third a still smaller dolphin-like Cetacean. The *Zeuglodon* remains indicate a very small species.

In regard to the probable age of the deposit, it may be observed that although *Zeuglodons* occur in America in the Middle Eocene, and in England in the lower part of the Upper Eocene (Barton beds), in Malta they are found in the Miocene, where one of the forms is of very small size. Moreover, since, with the exception of *Zeuglodon* and *Squalodon*, together with the problematical *Balænoptera* (?) *juddi*, Whales are unknown in the Eocene, while we have two distinct forms in addition to the *Zeuglodon* from these deposits, it might seem that the age of the latter is Miocene rather than Eocene. So far as it goes, the evidence of the *Zeuglodon* might be in favour of the same view, since such a small form as the one before us might well be one of the last waning representatives of its race.

With these preliminary remarks, I proceed to the consideration of the specimens themselves.

#### I. ZEUGLODON CAUCASICUS, sp. nov.

The *Zeuglodon* remains comprise the hinder part of a left mandibular ramus containing four teeth (Pl. XXXVI. fig. 1), another fragment of a jaw with five broken teeth, a left humerus (Pl. XXXVI. fig. 2), and an imperfect caudal vertebra (Pl. XXXVI. fig. 3).

The *Zeuglodon* nature of the figured jaw is shown by the teeth, in which the serrations are as fully developed on the anterior as on the posterior border, thus differentiating the specimen from the *Squalodons*. The jaw is relatively deeper than in the so-called *Zeuglodon hydrarchus*<sup>1</sup> of North America, but the chief peculiarity of the specimen is its small size, which at once distinguishes it from the American form.

The humerus (Pl. XXXVI. fig. 2) agrees in relative size with the jaw, its total length being only 4·4 inches, whereas the corresponding bone of *Z. hydrarchus* preserved in the Museum at Haarlem measures 8·6 inches<sup>2</sup>. In character both specimens agree very closely, although the European example is distinguished by the greater development of the deltoid crest (*d*), the more oblique form of the head (*h*), and the less upward extension of the great tuberosity (*t*); the upward extension of this tuberosity in the Caucasian specimen is, however, at least partly due to the effect of crush. Both bones are distinguished by the large size of the head, the compressed form of the

<sup>1</sup> Dames and Gaudry regard this form as the female of the larger *Z. cetoides*, but Cope (Amer. Nat. 1890, p. 602), who alludes to it as *Z. brachyspondylus*, considers that it may belong to a distinct genus—*Doryodon*. That genus is typically represented by the small *Doryodon pygmæus*, Leidy.

<sup>2</sup> There is a cast of this bone in the British Museum.



shaft, and the circumstance that the radius and ulna articulated to the distal end by means of two slightly convex facets set obliquely to each other, the one being anterior and the other posterior. It is quite evident that there was but little, if any, movement between the humerus and the radius and ulna, and that the whole limb formed a paddle strictly comparable to that of modern Cetaceans, although probably somewhat less specialized.

The peculiar structure of the humerus induces me to take this opportunity of making a few observations as to the systematic position of *Zeuglodon*. It will be remembered that in a recent memoir Prof. D'Arcy Thompson<sup>1</sup> has endeavoured to show that these animals, in place of being Cetaceans, have "the closest possible relation with the Pinnipedes." In that memoir the author has shown a wise discretion, from his point of view, in making no reference to the humerus. If that bone be compared with the humerus of a Seal it will be found that, beyond the fact that both have a strongly-developed deltoid crest, there is not the most remote resemblance between the two; the humerus of a Seal having condyles like those of any ordinary mammal. On the other hand, I submit, that between the Zeuglodont and Cetacean humerus there is a very pronounced general resemblance; both having a very large head, directed outwardly in the natural position, a more or less flattened shaft, and the distal end terminating in fore-and-aft facets for the radius and ulna. It is true that in the Zeuglodonts the head is relatively smaller, the shaft longer and more flattened, and the distal facets more rounded than in modern Cetaceans; while the latter have lost the distinct deltoid crest of the Zeuglodonts, and the two tuberosities have become confluent. These differences appear, however, to me to be precisely those which we should expect to meet with in a generalized form; and how it is possible to imagine that an animal with a humerus of this type, and a true paddle, in place of an ordinary fore limb, can have "the closest possible relation" with the Seals, passes my comprehension.

I do not propose to discuss all the points raised in Prof. Thompson's memoir, but it appears to me that several of the characters he refers to as distinguishing the Zeuglodonts from typical Cetaceans and allying them to the Seals are likewise merely generalized features. For instance, the presence of a large spine and a small coracoid process in the Zeuglodont scapula appear clearly to come under this category, for I think few will deny that the enormous coracoid of the ordinary Cetacean is an acquired and not an inherited character, and the loss of the spine is assuredly so. Then, again, the cervical vertebræ, with their elongated centra, small lateral canals, and approximated upper and lower transverse processes, although undoubtedly very like those of a Seal, appear to me to be merely another instance of the generalized characters of the Zeuglodonts. In confirmation of this I may mention that Prof. Cope<sup>2</sup> has recently figured the cervical vertebræ of an undoubted

<sup>1</sup> Stud. Mus. Dundee, vol. i. art. 9 (1890).

<sup>2</sup> Amer. Nat. 1890, p. 605, fig. 2.



Cetacean (*Priscodelphinus*) from the American Miocene, in which the vertebræ have much longer centra than ordinary, with the lateral canal small and nearly circular, and the roots of the transverse processes approximated. Indeed, Prof. Cope speaks of the Cetacean in question as having "a neck like that of a Seal in proportions."

I am therefore of opinion that, instead of being nearly allied to the Seals, *Zeuglodon* has much more the characters of a very generalized Cetacean; and that, if it should be found impossible to include it in the Cetacean order, it will have to form an order by itself.

Reverting to the consideration of the specimens from the Caucasus, I have to mention that I have merely figured the imperfect caudal vertebra represented in Pl. XXXVI. fig. 3, which I believe to be referable to *Zeuglodon*, in order to show its marked difference from the caudal vertebra represented in Pl. XXXVII. fig. 2.

With regard to the question of species, I have first of all to mention that the Caucasian *Zeuglodon* is certainly distinct from the larger American forms, and likewise from the Egyptian ones described by Prof. Dames<sup>1</sup>, which may be specifically identical with the former. The Malta *Zeuglodon* has received no distinct name. Of other named forms, *Z. wanklyni*, Seeley<sup>2</sup>, from the Barton beds, which is founded on an unfigured skull now not forthcoming, is sufficiently distinguished by its superior size—one of the teeth measuring  $1\frac{3}{4}$  inch in length. *Z. vasconum*, Delfortrie<sup>3</sup>, from the Eocene of France, is also a large species, founded upon the evidence of a tooth. There are also *Z. paulsoni*, Brandt<sup>4</sup>, from the Eocene of Russia, and *Z. puschiei*, Brandt<sup>4</sup>, from that of Poland; both these were founded upon vertebræ, and appear to have been large-sized species. The other European form is *Z. vredense*, Landois<sup>5</sup>, from the Eocene of Westphalia, but this is not sufficiently characterized to admit of its being at present regarded as a distinct species. *Kokenodon onomata*, Hector<sup>6</sup>, from the Eocene of New Zealand, and *Zeuglodon harwoodi*, Sawyer<sup>7</sup>, from the Eocene of South Australia, are both large species of *Zeuglodon*. The reference to *Doryodon pygmæus*, Leidy, from the Eocene of South Carolina, which would appear from its name to be a very small *Zeuglodon*, I have not been able to find.

Although I cannot be assured of the specific distinctness of the present form from the last-named species, yet, as it is inconvenient to allude to it without a separate name, I propose to call it provisionally *Z. caucasicus*, its distinctive character being its small size.

<sup>1</sup> Sitzber. Ak. Wiss. vol. vi. p. 130 (1883).

<sup>2</sup> Quart. Journ. Geol. Soc. vol. xxxii. p. 428 (1876).

<sup>3</sup> Act. Soc. Linn. Bordeaux, vol. ix. p. 115 (1873).

<sup>4</sup> Bull. Acad. St. Pétersbourg, vol. xix. column 246 (1874).

<sup>5</sup> Corresp. Nat. Hist. Ver. preuss. Rheinl. 1884, p. 49.

<sup>6</sup> Trans. N. Zeal. Inst. vol. xiii. p. 435 (1881).

<sup>7</sup> Proc. Linn. Soc. N. S. W. vol. v. p. 298 (1881).



## II. UNDETERMINED CETACEAN.

(? *Platanistidæ*.)

The second species in the collection is represented by an associated series of four cervical, and the first dorsal, a lumbar, and a caudal vertebra; one of the cervicals being represented in Pl. XXXVII. figs. 1, 1*a*, and a caudal in figs. 2, 2*a* of the same. The vertebræ indicate a Whale of the approximate size of the existing Beluga, with the last four cervical vertebræ free and of moderate length, and the lumbar and caudals likewise of medium elongation. The form of both the cervical and caudal vertebræ shows that these specimens are not referable to *Zeuglodon caucasicus*. The cervical vertebræ are represented by their centra, with the roots of the transverse processes attached; the figured example having a width of 3.1 inches, a height of 2.2 inches, and an inferior length of 1 inch. The lumbar has a length of 2.3 inches, and a width of 2.6 inches across the anterior face of the centrum.

With regard to their affinity, it is clear, in the first place, that, as they belong neither to *Monodon* or *Delphinapterus*, they cannot be referred to any other existing genera of *Delphinidæ*, in all of which the first two cervicals are united, and the remainder extremely short, and generally more or fewer of them anchylosed. Free cervicals occur in the existing *Balænoptera*, *Megaptera*, and *Rhachianectes*, and the extinct *Cetotherium*. The small size of the specimens renders it, however, somewhat improbable that they belong to the *Balænidæ*; and to this it may be added that they differ in certain respects from those of *Balænoptera*. Moreover, we have no definite evidence of the occurrence of Baleen Whales in the Lower Miocene, to which it is quite probable that the Caucasian strata may belong.

The existing *Platanistidæ* and the numerous fossil forms referred by Prof. Cope to that family all have free cervicals, and, from the resemblance of the present specimens to some of the Miocene American representatives of that group described by that writer, I am inclined to think that they should be referred to the same family. The resemblance appears to be closest with the series of vertebræ figured<sup>1</sup> as *Ixacanthus*, and I am by no means certain that the Caucasian specimens do not indicate a member of the same genus, of rather larger size than its typical representative. Still, however, I do not propose to make any definite determination, leaving the matter with the expression of my opinion that the specimens probably belong to the *Platanistidæ*.

III. *INIOPSIS CAUCASICA* (*n. g. et sp.*).

The third Caucasian Cetacean is indicated typically by the hinder portion of a cranium, and also by some fragments of jaws and several vertebræ probably referable to the same form. It is much inferior in size to the preceding, and was of rather smaller dimensions than the existing *Inia*: that is to say, its total length was some six feet.

<sup>1</sup> Cope, Amer. Nat. 1890, p. 603, fig. 1.



The portion of the cranium is represented from the upper surface in Pl. XXXVIII. fig. 2, and, although somewhat crushed, is in a fair state of preservation. Alongside the Caucasian specimen there is represented (fig. 1) the corresponding portion of the cranium of an extinct Cetacean from the Tertiary of Argentina, described by Burmeister<sup>1</sup> under the name of *Pontistes rectifrons* (Bravard), which belongs to the *Platanistidæ*. A comparison of the figures will show the close relationship of the two forms at a glance. This is especially manifested by the form of the maxillary fossæ lying on the two sides of the narial aperture. In both the fossils, as well as in the existing *Stenodelphis*<sup>2</sup> and *Inia*, these fossæ are characterized by their depth and their squared posterior borders, which run close up to the parieto-occipital surface. On the other hand, in the *Delphinidæ* these fossæ are shallower, and shelve upwards towards the occiput, where they terminate gradually in a curved border.

The fragment of jaw represented in Pl. XXXVII. figs. 3, 3 a is one of a pair, and is, I think, a portion of the rostral region of the left maxilla. It contains 13 dental alveoli in the space of 5 inches, and is of a long and slender form. The alveoli are laterally compressed. These jaws have a great resemblance to those of the European Miocene *Schizodelphis sulcatus*<sup>3</sup>, in which the dental alveoli have the same compressed form. If, however, as I think probable, they belong to the form under consideration, it is quite evident that they cannot be referred to *Schizodelphis*, that genus (although placed among the *Platanistidæ*) having the maxillary fossæ of the ordinary Dolphin-like form.

The vertebræ do not call for any notice beyond the bare mention that the centrum of a lumbar measures 1.3 inch in length and 1 inch in width.

Compared with *Inia*, the Caucasian cranium differs in the absence of the high prominence behind the nares, in the smaller development of the ridges bounding the maxillary fossæ, and in the less-inclined occiput. Assuming that the lower jaw belongs to the same form, the teeth will also differ in their relatively smaller size and lateral compression.

In many respects the fossil skull is more like *Stenodelphis*, but the maxillary fossæ are deeper, with more prominent borders; while the recent form has not the large and well-defined square surface behind the nares between these fossæ. The teeth of *Stenodelphis* are, moreover, cylindrical.

In *Pontistes* the occipital surface is more inclined forwards than in the Caucasian fossil, and the space between the fossæ behind the nares is also narrower. The dental alveoli are, however, elliptical in both. A much larger form has been described by Burmeister<sup>4</sup> from the Argentine Tertiary under the name of *Saurodelphis argen-*

<sup>1</sup> Ann. Mus. Buenos Ayres, vol. iii. p. 138, pl. ii. (1885).

<sup>2</sup> The name *Pontoporia* being preoccupied, it is necessary to adopt the later *Stenodelphis*.

<sup>3</sup> Gervais, Zool. et Pal. Françaises, 2nd ed. pl. lxxxiii.

<sup>4</sup> Sci. An. Mur. Buenos Ayres, vol. iii. p. 451 (1891).



*tinus*, characterized by the great length of the rostrum and the extreme compression of the dental alveoli. The occipital region is more like that of the Caucasian fossil than is *Pontistes*, but there is not the square flat surface behind the nostrils; while the dental alveoli are quite different from those referred to the Caucasian form.

None of the other fossil forms referred to the *Platanistidæ*, of which the skulls are known, have the maxillary fossæ of the *Inia* type; and I accordingly regard the Caucasian skull as indicating a new genus and species, for which I suggest the name *Iniopsis caucasica*.

The evidence that the *Platanistidæ* are a very ancient type has been gradually accumulating; but the European Tertiary forms hitherto referred to that group have more Dolphin-like skulls. The occurrence of a form so closely allied to the South-American types in Russia is therefore a matter of considerable interest. Its association with the North-American Tertiary genus *Zeuglodon* is also significant, and suggests that both these groups of Cetaceans had originally a wide distribution.

P.S.—Since this paper was in type I have received from Dr. Sjögren a copy of an article<sup>1</sup> in which the Cetacean-yielding strata of the Caucasus are assigned to the Eocene.

#### EXPLANATION OF THE PLATES.

##### PLATE XXXVI.

- Fig. 1. Inner side of hinder part of the left ramus of the mandible of *Zeuglodon causicus*.  $\frac{1}{2}$ .  
 Fig. 2. Dorsal aspect of left humerus of the same. *h*, head; *t*, greater tuberosity; *d*, deltoid ridge; *r*, radial facet; *u*, ulnar facet.  $\frac{1}{2}$ .  
 Fig. 3. Inferior aspect of imperfect caudal vertebra.  $\frac{1}{2}$ .

##### PLATE XXXVII.

- Figs. 1, 1 *a*. Anterior and right lateral aspect of centrum of posterior cervical vertebra of an undetermined Cetacean (? *Platanistidæ*). *a*, upper, *b*, lower transverse process.  $\frac{1}{2}$ .  
 Figs. 2, 2 *a*. Anterior and inferior aspects of anterior caudal vertebra of the same.  $\frac{1}{2}$ .  
 Figs. 3, 3 *a*. Fragment of jaw of (?) *Iniopsis caucasica*.  $\frac{1}{2}$ .

##### PLATE XXXVIII.

- Fig. 1. Frontal aspect of imperfect cranium of *Pontistes rectifrons*.  $\frac{2}{3}$ . (After Burmeister.)  
 Fig. 2. Corresponding view of imperfect cranium of *Iniopsis caucasica*.  $\frac{2}{3}$ .

#### 5. Descriptions of some new Genera and new Species of Phytophagous Coleoptera from Madagascar. By MARTIN JACOBY, F.E.S.

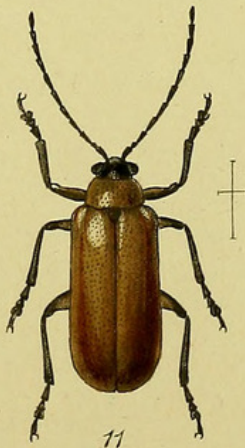
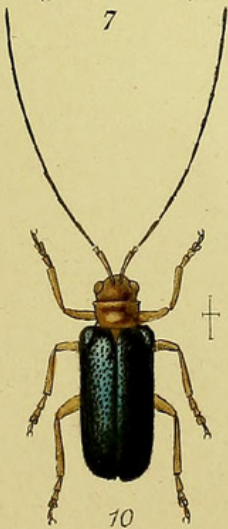
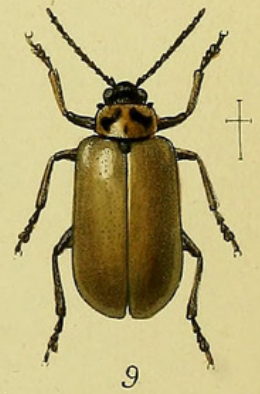
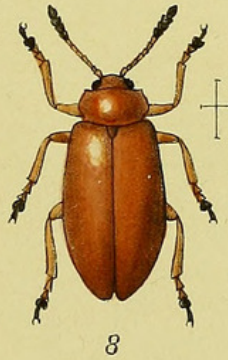
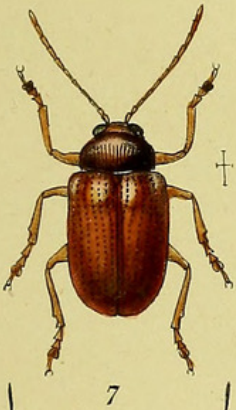
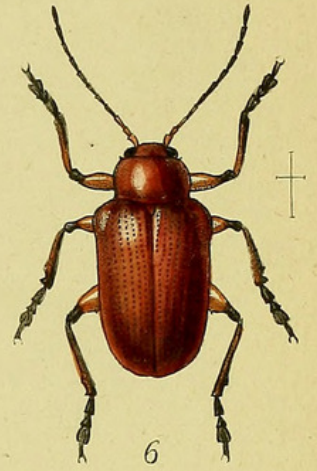
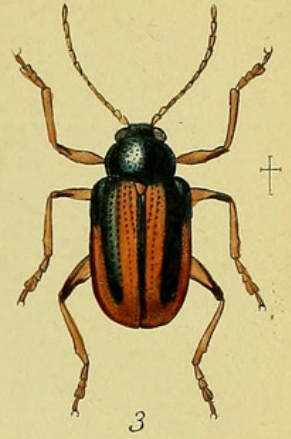
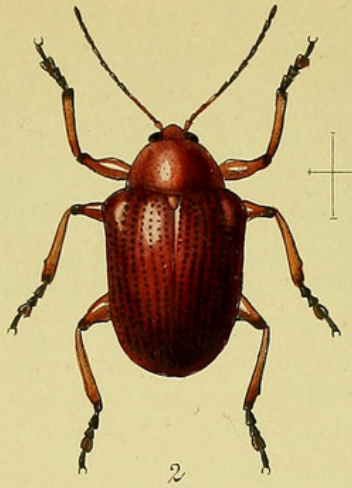
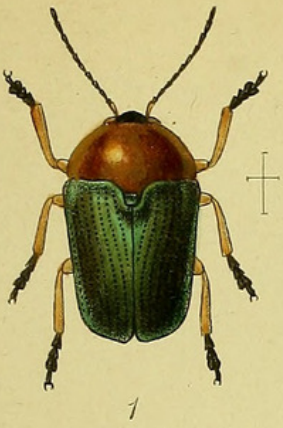
[Received September 1, 1892.]

(Plate XXXIX.)

But little is known at present of the Phytophagous Coleoptera of Madagascar, especially so far as the smaller species are concerned, and it is probable that many interesting forms will be found by a

<sup>1</sup> Meddel. Upsala Univ. Min.-Geol. Inst. vol. xiii. arts. 2, 3 (1891).











careful explorer who does not devote his attention only to the larger and more showy species. The present descriptions are drawn from a small collection which I have lately received from Mr. Sikora, who makes the study of this large island his aim. All the types are contained in my collection.

*LEMA RUGICOLLIS*, n. sp.

Subcylindrical, entirely dark piceous; antennæ short and robust; thorax subcylindrical, coarsely punctured anteriorly; elytra very closely and strongly punctate-striate, the interstices costate at the apex, the ninth row of punctures entire.

Length 2 lines.

Of parallel, subcylindrical shape; nearly black, the head not constricted behind, the vertex very finely punctured; eyes moderately deeply notched, subocular grooves not very deeply marked; clypeus and labrum obscure fulvous; antennæ scarcely extending beyond the base of the thorax, black, the terminal joints gradually and strongly widened and thickened; thorax longer than broad, subcylindrical, widened at the middle, without a basal sulcation, the surface coarsely punctured anteriorly, finely and closely towards the base, the middle of the disc with a longitudinal depression extending to the base, where it ends in a fovea; elytra with closely-approached rows of deep punctures, the latter also closely placed, the interstices at the sides and apex longitudinally costate; underside very sparingly clothed with greyish pubescence; posterior femora not extending to the end of the abdomen.

The shape and structure of the thorax, the sculpturing, and the uniform dark colour of this species will distinguish it from any of its allies from the same locality.

*LEMA MADAGASCARIENSIS*, n. sp.

Obscure piceous, the base of the head obscure fulvous; antennæ very short; thorax nearly impunctate, trifoveolate; elytra with basal depression, strongly and rather distantly punctate-striate, the interstices smooth, costate at the apex.

Length 2 lines.

Head elongate, finely rugose and pubescent, the vertex fulvous with a central longitudinal groove, the supraorbital grooves rather indistinct; clypeus with a transverse row of punctures; palpi fulvous; antennæ very short, extending only to the base of the thorax; thorax subquadrate, rather broader than long, the anterior angles distinctly tuberculate, the disc extremely closely and finely punctured, the basal sulcus deep, the space behind it with a transverse ridge, the anterior portion with a very short transverse groove at the sides, the middle of the disc with two short elongate foveæ, and another at the centre of the sulcus; scutellum truncate at the apex; elytra with a short depression below the base near the suture, brownish æneous, deeply and strongly punctate-striate, the punctures rather distantly placed, the 9th row entire; the interstices smooth, costate at the apex; underside very dark fulvo-piceous, thinly pubescent, legs more distinctly dark fulvous.



Allied to *L. ænea*, Lac., but of different coloration, and distinguished by the very short antennæ and the sculpture of the elytra.

*CRYPTOCEPHALUS SCUTELLATUS*, n. sp.

Robust, broad, black, above fulvous, head finely strigose, thorax impunctate, scutellum black; elytra strongly and regularly punctate-striate, a spot on the shoulder and the extreme basal and sutural margins black.

Length  $2\frac{1}{2}$ – $3\frac{1}{4}$  lines.

Head finely strigose-punctate, fulvous; the eyes large, but slightly indented; the antennæ two-thirds the length of the body, black, the lower four joints fulvous, the third and fourth joints equal; thorax proportionately long, strongly narrowed anteriorly, the sides nearly straight, strongly deflexed, the surface entirely impunctate, the posterior margin finely dentate, narrowly black, the median lobe toothed, bisinuate; scutellum one half longer than broad, black, shining, its apex broadly rounded; elytra not wider at the base than the thorax, fulvous, with deep and regular rows of punctures, of which the five inner ones do not extend to the base, the first and second rows are very short and joined at the apex, the sixth and seventh rows are also abbreviated at some distance before the apex; a small black spot is placed on the shoulders, the extreme basal and sutural margins are likewise of that colour; underside and pygidium black, clothed with long yellowish pubescence; the prosternum ends in a blunt projection in the male, but is broadly truncate in the female.

Three specimens are contained in my collection.

*CRYPTOCEPHALUS DOHRNI*, n. sp. (Plate XXXIX. fig. 1.)

Black, thickly pubescent below, the thorax and legs fulvous, the former finely punctate; elytra metallic green, strongly punctate-striate, the interstices finely transversely rugose; tarsi black.

Length  $2\frac{1}{4}$  lines.

Rather broad and robust, the head closely punctured, greenish black, the space between the eyes clothed with greyish pubescence; the antennæ extending scarcely to half the length of the elytra, black, the basal joint fulvous, the sixth and following joints slightly widened; thorax twice and a half broader than long, the sides rather strongly deflexed, the lateral margin slightly rounded, the surface opaque, fulvous, very minutely and closely punctured; scutellum black, not longer than broad, its apex truncate, the base with a fovea; elytra parallel, pale green, distinctly punctate-striate, the interstices very finely transversely rugose and sparingly clothed with short silvery pubescence; underside densely pubescent, black, as also the tarsi, the legs fulvous, the last abdominal segment with a deep round fovea; prosternum broad, flat, densely clothed with greyish pubescence.

The elytra in this species, of which I received a single specimen, are but slightly metallic and have a silky appearance on account of the fine pubescence and rugose or finely wrinkled interstices.



*EULYCHIUS NIGRITARSIS*, n. sp.

Fulvous, the terminal joints of the antennæ and the tarsi black; thorax rather sparingly punctured; elytra strongly punctate-striate; femora dentate.

Length 2 lines.

Head finely and sparingly punctured, the vertex convex; clypeus finely rugosely punctate, separated from the face by a transverse groove, eyes surrounded by a very narrow sulcus; antennæ extending a little beyond the base of the elytra, fulvous, the apical five joints black, strongly dilated and transverse, the third, fourth, and fifth joints equal, the sixth shorter; thorax transverse, the sides rounded, the anterior angles rather acutely produced, the surface finely and not very closely punctured on the disc; elytra not depressed below the base, distinctly punctate-striate, the punctures much finer towards the apex; femora with a small tooth; the extreme apex of the tibiæ and the tarsi black.

This species, like *E. dorsalis*, Duv., differs from the type in having armed femora; the transverse apical joints of the antennæ are, however, typical. The black tarsi and general system of coloration separate the present insect from the other two known species.

*PHELOTICUS BRUNNEUS*, n. sp. (Plate XXXIX. fig. 2.)

Broadly ovate, robust, dark fulvous; the antennæ (basal joints excepted), the knees, and the apex of the tibiæ black; thorax subconical, very sparingly and finely punctured; elytra finely punctate-striate anteriorly only; femora minutely toothed.

Length  $3\frac{1}{2}$  lines.

Head impunctate, the eyes with a very narrow sulcus at their inner margin, rather deeply notched, the epistome not separated from the face; jaws black; antennæ slender, filiform, extending to nearly two-thirds the length of the elytra, black, the lower four joints fulvous, the third and fourth joints equal; thorax subconical, narrowed in front, the sides nearly straight; the disc about one half broader than long, with a few fine punctures at the sides; scutellum smooth, subpentagonal; elytra much broader at the base than the thorax, convex, with a very shallow basal depression; the shoulders prominent, bounded within by a longitudinal depression; the disc with a few rows of fine punctures distinct only anteriorly, nearly obliterated below the middle; underside and legs fulvous, the apex of the femora and of the tibiæ as well as the claw-joint black; femora with a small tooth; tibiæ not channelled, the four posterior ones deeply emarginate before the apex; claws appendiculate, the inner division very short and pointed; prosternum slightly longer than broad, concave, deeply punctured, the thoracic episternum strongly convex.

A rather aberrant species and not typical of *Pheloticus* or allied genera, apparently allied to *P. seripunctatus*, Fairm., but differing in the colour of the antennæ and legs.



*PHELOTICUS* (?) *ÆNEICOLLIS*, n. sp. (Plate XXXIX. fig. 4.)

Below obscure æneous, the abdomen fulvous, the head and thorax greenish æneous, nearly impunctate, antennæ fulvous; elytra flavous, strongly punctate-striate, the sutural and lateral margin and a discoidal longitudinal stripe, not extending to the apex, greenish æneous.

Length  $1\frac{1}{2}$  line.

Head finely and distantly punctured, metallic æneous; eyes rather broadly emarginate, surrounded by a very narrow sulcus which extends downwards to the epistome, which is separated from the face by another transverse groove; clypeus broadly subquadrate, impunctate, labrum fulvous; antennæ filiform, extending to about half the length of the elytra, pale fulvous, the apex of the terminal joint black, the third joint distinctly shorter than the fourth, the terminal joints slightly thicker; thorax twice as broad as long, the sides rounded, narrowed towards the apex, narrowly margined, the anterior portion rather strongly deflexed, the surface very sparingly punctured, metallic greenish æneous; scutellum triangular, fulvous, its apex æneous; elytra subcylindrical, slightly broader at the base than the thorax, with a shallow depression below the base, fulvous, strongly punctate-striate, the punctures nearly disappearing at the apex, the sutural margin narrowly, the lateral one more broadly greenish æneous; a longitudinal stripe, angulate at its middle, extends from the middle of the base to some distance before the apex, the inner margin of this stripe is deeply concave at the angulate portion; breast æneous; abdomen more or less fulvous; legs flavous, the femora with a very minute tooth, the claws appendiculate, the inner division rather long and acute, the prosternum broadly subquadrate, the anterior thoracic episternum convex.

This species, which I have only provisionally placed in *Pheloticus*, has the general appearance and shape of a species of *Rhyparida* and does not quite agree with any genus described under the group of *Typophorinæ*, to which it undoubtedly belongs; the supra-ocular sulcus is very narrow and placed close to the inner margin of the eyes, while the claws may almost be called bifid; in one specimen, probably the female, the thorax is still broader and subangulate at the sides, and the femora and knees are stained with piceous.

*PHELOTICUS* (?) *BIFASCIATUS*, n. sp. (Plate XXXIX. fig. 3.)

Fulvous or obscure piceous, the head and thorax greenish, the latter remotely but strongly punctured; elytra strongly punctate-striate, fulvous; the suture narrowly, the lateral margin broadly, and a straight discoidal stripe abbreviated before the apex, metallic green.

Length  $1\frac{1}{4}$  line.

Of the same shape as the preceding species and of similar structure; the antennæ entirely pale fulvous, the thorax distinctly but not closely punctured on the disc; the elytra without a basal depression, and with a broad and regular-shaped discoidal stripe, pointed at its



lower end and not extending to the apex, the lateral margins broadly metallic green as far as the middle of the elytra, the femora with a very minute tooth, slightly stained with piceous; everything else as in *P. æneicollis*.

*IVONGIUS NIGROMACULATUS*, n. sp. (Plate XXXIX. fig. 5.)

Testaceous, the head and thorax impunctate; elytra finely punctate-striate, nearly impunctate near the apex, the extreme lateral margin and a small spot below the middle black; femora unarmed.

Length 1 line.

Of convex and subcylindrical shape, the head impunctate, without any grooves or depressions, the clypeus not separated from the face, its anterior edge concave, the eyes surrounded by a narrow sulcus; the antennæ quite extending to half the length of the elytra, flavous, the basal two joints thick and short, of equal length, the third and following joints more slender, the terminal ones distinctly incrassate; thorax nearly twice as broad as long, subcylindrical, the sides very strongly deflexed, straight; the anterior margin straight, the posterior one rounded and widened at the middle, the surface impunctate; elytra slightly widened posteriorly, strongly convex, with a very slight depression below the base, the shoulders prominent, the surface finely punctate-striate, the punctures nearly obsolete near the apex, the extreme lateral margin and a small spot placed near the latter below the middle black; underside and legs flavous, the last tarsal joint and the claws stained with black; femora unarmed, claws bifid; prosternum widened posteriorly.

This species resembles much in shape those of the genus *Paria* and also of *Syagrus*; on account of the unarmed femora and bifid claws, however, I have placed it in *Ivongius*; in some specimens the lateral elytral margin is of the flavous or testaceous ground-colour.

*RHEMBASTUS DIMIDIATICORNIS*, n. sp.

Fulvous, the sixth and seventh joints of the antennæ black, thorax distinctly punctured on the disc; elytra violaceous blue, distinctly punctate-striate, the apex fulvous.

Var. *a*. Elytra flavous, the base, suture, and an oblique band at the middle obscure fuscous.

Var. *b*. Elytra entirely fulvous.

Length  $1\frac{1}{4}$  line.

Of convex, subcylindrical shape; the head nearly impunctate, fulvous; the clypeus not separated from the face; eyes emarginate, widely separated, sulcate above their inner margin; antennæ scarcely extending to half the length of the elytra, fulvous, the sixth and seventh joints black, the terminal ones distinctly thickened, the first and second joints short, almost equal, the second and third joints thinner, equal; thorax about one half broader than long, narrowed in front, the sides nearly straight, the surface finely and sparingly punctured on the disc only, fulvous; scutellum fulvous; elytra broader at the base than the thorax,



obsoletely depressed transversely below the base, rather strongly punctate-striate, the punctures much finer posteriorly, the disc violaceous, the extreme apex fulvous; underside and legs fulvous; femora unarmed; claws bifid; prosternum dilated posteriorly.

This small species is principally distinguished by the colour of the antennæ and that of the elytra; the varieties do not show any differences except in the colour of the upper surface; the unarmed femora do not agree with the definition of *Rhembastus*, but neither this genus nor *Ivongius* are well defined by the author, who has said nothing about the sulcus at the sides above the eyes, nor does M. Lefèvre mention this character in his diagnosis of the genus. On the other hand, *Ivongius*, which agrees in the unarmed femora with the present species, is described by von Harold as having the clypeus separated from the face, which is not the case in the insect described here. *Ivongius antennarius*, Har., agrees very nearly with it (to judge from a three-line description), but is described with a smooth thorax. *R. pusillus*, Har., seems to be another closely allied species, but differs in the colour of the antennæ and of the head and thorax.

*RHEMBASTUS ANTENNATUS*, n. sp.

Reddish fulvous; antennæ flavous, the sixth, seventh, and apical two joints as well as the tarsi black; thorax sparingly punctured; elytra finely and distantly punctate-striate.

Length  $1\frac{1}{2}$  line.

Head impunctate, the eyes surrounded with a distinct sulcus, the vertex with a longitudinal groove, clypeus not separated from the face; jaws black; antennæ extending to half the length of the elytra, flavous, the third and fourth joints equal, the sixth and seventh and apical two joints black, the latter distinctly thickened; thorax one half broader than long, the sides straight, the surface sparingly and finely punctured at the disc, the sides impunctate; elytra convex, without basal depression, finely punctate-striate, more distinctly anteriorly than posteriorly, the shoulders with a deep depression within; femora dentate, tarsi black, claws bifid.

Principally distinguished from other nearly similarly coloured species by the colour of the antennæ.

*EURYDEMUS METALLICUS*, n. sp.

Obscure piceous, the antennæ and legs fulvous; above metallic greenish or cupreous; the head and thorax nearly impunctate, the elytra deeply punctate-striate, the interstices more or less longitudinally convex, femora dentate.

Length  $1\frac{3}{4}$ –2 lines.

Of rather elongate and parallel shape; the head metallic greenish, with a few punctures at the vertex; the eyes large, rather closely approached, their inner margin sinuate; clypeus transverse, fulvous, its surface rather depressed, its upper margin separated from the face by a narrow transverse groove; antennæ long and slender, fulvous, the basal joint stained with piceous, the second joint half



the length of the third, the fourth slightly longer than the preceding joint; thorax about one half broader than long, the sides nearly straight, the surface very little convex, impressed with a few very minute punctures, visible only under a strong lens; elytra much broader at the base than the thorax, metallic green or cupreous, the sutural and lateral margins sometimes fulvous, the punctures very deep and regular, the interstices rather convex, the apex much more finely and distantly punctured; underside piceous, the breast with a metallic greenish hue, the legs fulvous; the femora with a distinct tooth; claws bifid; prosternum broadly transverse.

*RHYPARIDA STRIATICOLLIS*, n. sp. (Plate XXXIX. fig. 7.)

Fulvous, the head and thorax piceous, the antennæ flavous; the seventh joint black; thorax transverse, longitudinally strigose on the disc; elytra fulvous, with basal depression, strongly punctured anteriorly, nearly impunctate below the middle.

Length  $1\frac{1}{4}$  line.

Vertex of the head convex with a few fine punctures, dark fulvous; eyes with a very narrow sulcus round their inner margin; clypeus separated from the face by a deep transverse groove, rugosely punctured; antennæ rather long, flavous, the seventh joint black, the third joint much shorter than the fourth, the terminal joints slightly thickened; thorax twice as broad as long, but slightly narrowed in front, the sides strongly rounded, the anterior angles rather prominent, the disc strongly and closely longitudinally strigose from the middle to the base, the anterior portion sparingly punctured, fulvo-piceous; elytra with a deep depression below the base, strongly punctate-striate, the punctures nearly obsolete below the middle; underside fulvous; legs flavous; the femora with a very minute tooth, claws bifid; the anterior thoracic episternum slightly concave; prosternum broadly subquadrate, strongly punctured.

I cannot find any differences whatever in regard to structural characters to justify a separation of this species from *Rhyparida*, of which, until now, no true species have been known from Africa. The general shape and that of the thorax is the same, the thoracic episternum is not in the least convex, the four posterior tibiæ are emarginate at the apex and the claws are bifid; the peculiar striation of the thorax will distinguish this species at first sight.

*HEMYLOTICUS*, n. gen.

Body elongate; antennæ filiform; eyes deeply notched; thorax broader than long; elytra punctate-striate, the four posterior femora toothed, their tibiæ emarginate at the apex; claws bifid, the inner division very short; prosternum bilobed; mesosternum quadrate, its base raised, truncate; the anterior margin of the thoracic episternum convex.

This genus will enter the section *Typophorinæ*, Chap., from all genera of which it differs in the bilobed posterior margin of the prosternum and in the structure of the mesosternum.



**HEMYLOTICUS GENICULATUS**, n. sp. (Plate XXXIX. fig. 6.)

Reddish fulvous; the antennæ (the basal joints excepted), the knees, apex of the tibiæ, and the tarsi black; thorax very sparingly punctured; elytra finely punctate-striate.

Length 3 lines.

Head with a few fine punctures; the epistome broad, subquadrate, scarcely separated from the front; mandibles black; antennæ slender, filiform, the lower three joints fulvous, the rest black, the fourth joint slightly longer than the third; thorax about one half broader than long, the sides rounded, the anterior margin straight, the surface rather convex, with a few fine punctures; elytra much broader at the base than the thorax, without basal depression, very finely punctate-striate, fulvous and shining like the rest of the upper surface; underside coloured as above; the knees, the apex of the tibiæ, and the tarsi black.

A single specimen is contained in my collection.

**NISOTRA NIGRITARSIS**, n. sp.

Oblong-ovate, dark fulvous, the antennæ (the basal three joints excepted) and the tarsi black; head and thorax nearly impunctate, the latter with four longitudinal grooves; elytra extremely finely and closely punctured.

Length  $2\frac{1}{2}$  lines.

Head impunctate, transversely grooved between the eyes, the frontal elevations but slightly raised; palpi slender; antennæ extending a little beyond the base of the elytra, black, the basal three joints fulvous, the second and third joints of equal length; thorax twice as broad as long, the sides rounded, the angles acute, the disc with a few scarcely perceptible punctures, the anterior and posterior margins with a short perpendicular groove at each side; elytra widened towards the middle, the shoulders slightly prominent, the surface extremely finely and closely punctured; underside and legs fulvous, the tarsi black.

This species seems allied to *N. spadicea*, Dalm., but differs in the extremely fine and not geminately-arranged punctation of the elytra and in the black tarsi and larger general size.

**NISOTRA KLUGII**, n. sp.

Black; the head, thorax, the anterior legs, and the posterior tibiæ fulvous; elytra metallic green or purplish, very closely and finely punctured; antennæ fulvous or with the last three joints black.

Length  $2\frac{1}{2}$  lines.

Head impunctate, the frontal tubercles small, clypeus thickened; the antennæ extending a little beyond the base of the elytra, fulvous, the last three joints black, the third and fourth joints equal, the terminal ones thickened; thorax twice as broad as long, fulvous, the sides slightly rounded, the surface extremely finely and closely punctured, the anterior and posterior margins with a very short and indistinct longitudinal depression near the sides; scu-



tellum fulvous; elytra slightly widened at the middle, very closely and more strongly punctured than the thorax, the interstices obsoletely longitudinally costate at the sides, the shoulders prominent; the breast and abdomen as well as the posterior femora black; legs fulvous.

This species varies in having metallic green or purplish elytra; in two specimens the antennæ have the last three joints black, in one they are entirely fulvous.

*ASPHÆRA MADAGASCARIENSIS*, n. sp.

Fulvous, shining; the antennæ (the basal two joints excepted), the apex of the femora, and the tibiæ and tarsi black; thorax impunctate; elytra closely punctured and finely rugose.

Length 4 lines.

Head impunctate, deeply transversely grooved between the eyes; frontal tubercles transverse, distinct; clypeus swollen; palpi black; antennæ robust, black, the basal two joints fulvous, the terminal joints rather flattened; thorax nearly three times as broad as long, the sides with a broad and reflexed margin, strongly rounded; the disc uneven, depressed at the sides and at the middle, impunctate, shining; elytra closely punctured, the interstices everywhere finely wrinkled and rugose; the apex of the femora and the tibiæ and tarsi black, tibiæ deeply channelled; the first joint of the posterior tarsi as long as the following joints together, claws moderately swollen.

Apparently allied to *A. melanarthra*, Fairm., but differing in the colour of the legs and the wrinkled elytra, also in having but two joints of the antennæ fulvous; M. Fairmaire describes his species as having fuscous legs (femora 3-4 excepted) (?), which is (probably through a misprint) unintelligible.

*ASPHÆRA BREVICORNIS*, n. sp.

Flavous; the head, thorax, and legs pale fulvous; antennæ (the basal four joints excepted) black, short; thorax impunctate; elytra very minutely and closely punctured.

Length 3 lines.

Head impunctate, the frontal tubercles transverse, nearly contiguous; clypeus raised, short and truncate at the raised portion; labrum, jaws, and palpi fulvous; antennæ only extending to the base of the elytra, black, the basal four joints fulvous, the third joint slightly shorter than the fourth, terminal joints thickened; thorax more than twice as broad as long, rather strongly narrowed in front, the sides slightly rounded, narrowly marginate, the anterior angles rather strongly produced and thickened, the surface impunctate, shining, fulvous, rather deeply longitudinally sulcate near the lateral margins; elytra pale flavous, very finely and closely punctured; legs fulvous; the first joint of the posterior tarsi as long as the following joints together; claws very slightly incrassate.

This species has nearly simple, that is scarcely swollen, posterior claws, but agrees in all other respects with *Asphæra*.





Lydekker, Richard. 1892. "4. On Zeuglodont and other Cetacean Remains from the Tertiary of the Caucasus." *Proceedings of the Zoological Society of London* 1892, 558–581. <https://doi.org/10.1111/j.1096-3642.1892.tb01782.x>.

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